Tishk International University
Faculty of Applied Science
Information Technology Department

Insert and Select Records in PHP (MySQL)

Lecture 9

Fall 2025

Course Code: IT349

Grade 3

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Web Programming

Outlines

- Inserting Data Using phpMyAdmin
- Inserting Data into a Database Using PHP
- Retrieving Data from a Database
- Security Considerations

Learning Outcomes

- At the end of today’s session, you will be able to:

  - ✓ Explain how PHP connects and interacts with MySQL.
  - ✓ Use PHP mysqli functions to insert and read data.
  - ✓ Analyze and prevent SQL-related security issues.
  - ✓ Create a PHP page to store and display database records.

Inserting Data Into Database

- After a database and a table have been created, we can start adding data in them.
- The process of adding information to a table is similar to creating the table itself in terms of which PHP functions you use, but the SQL query is different. To insert records.

Let’s do it together 🙌

Inserting Data Using

phpMyAdmin

Syntax Rules

- When inserting data into a MySQL database using PHP, you need to follow several syntax rules to ensure the query works correctly.

1. Use a valid SQL INSERT statement

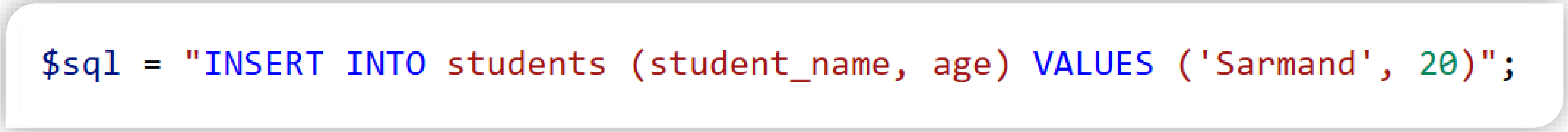
```
INSERT INTO table_name (column1, column2, ...) VALUES (value1, value2, ...);
```

- Column names and values must match in number and order.

Syntax Rules

2. Quote your SQL query in PHP

- The query must be a string, enclosed in either single ' ' or double " " quotes.



```
$sql = "INSERT INTO students (student_name, age) VALUES ('Sarmand', 20)";
```

Syntax Rules

3. Quote string values

- Text or string values must be enclosed in single quotes inside the SQL query.
- Numeric values do not need quotes.

```
$sql = "INSERT INTO students (student_name, age) VALUES ('Sarmand', 20)";
```

Syntax Rules

5. End the SQL statement with a semicolon (optional in PHP)

- In PHP, the semicolon inside the query string is optional, because PHP statements already end with ;.

- Both lines are valid:

```
$sql = "INSERT INTO students (grade) VALUES ('third')";
```

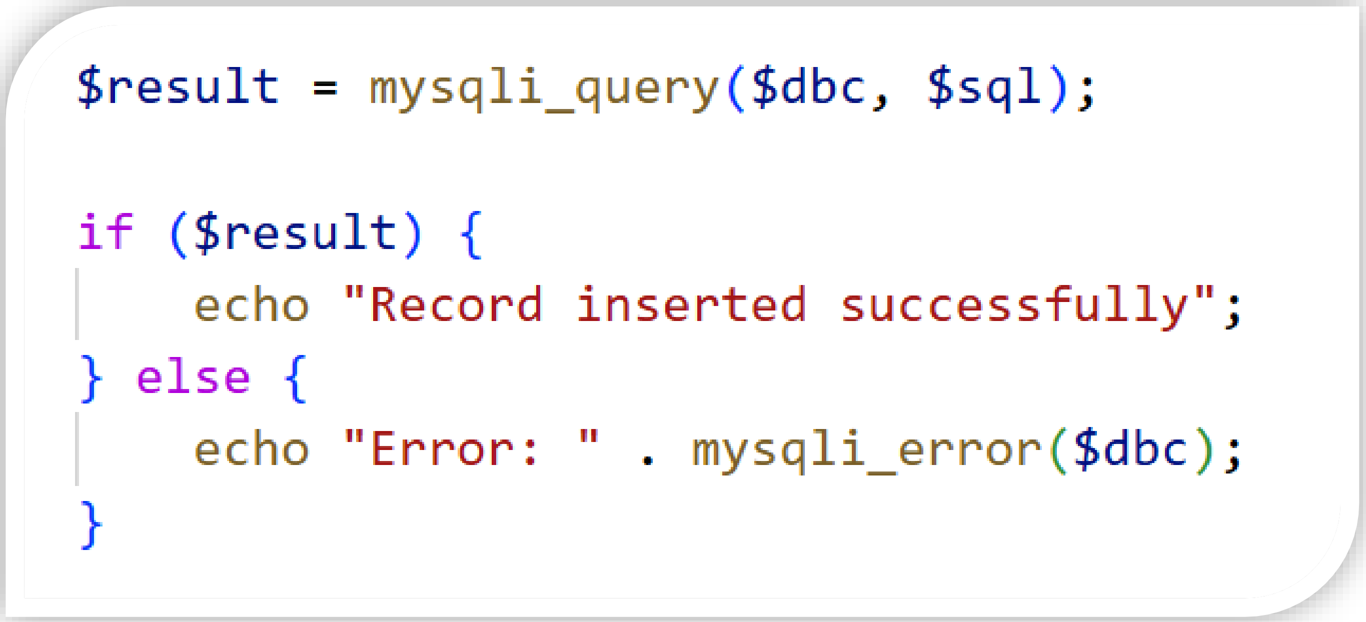
And

```
$sql = "INSERT INTO students (grade) VALUES ('third')"
```

Syntax Rules

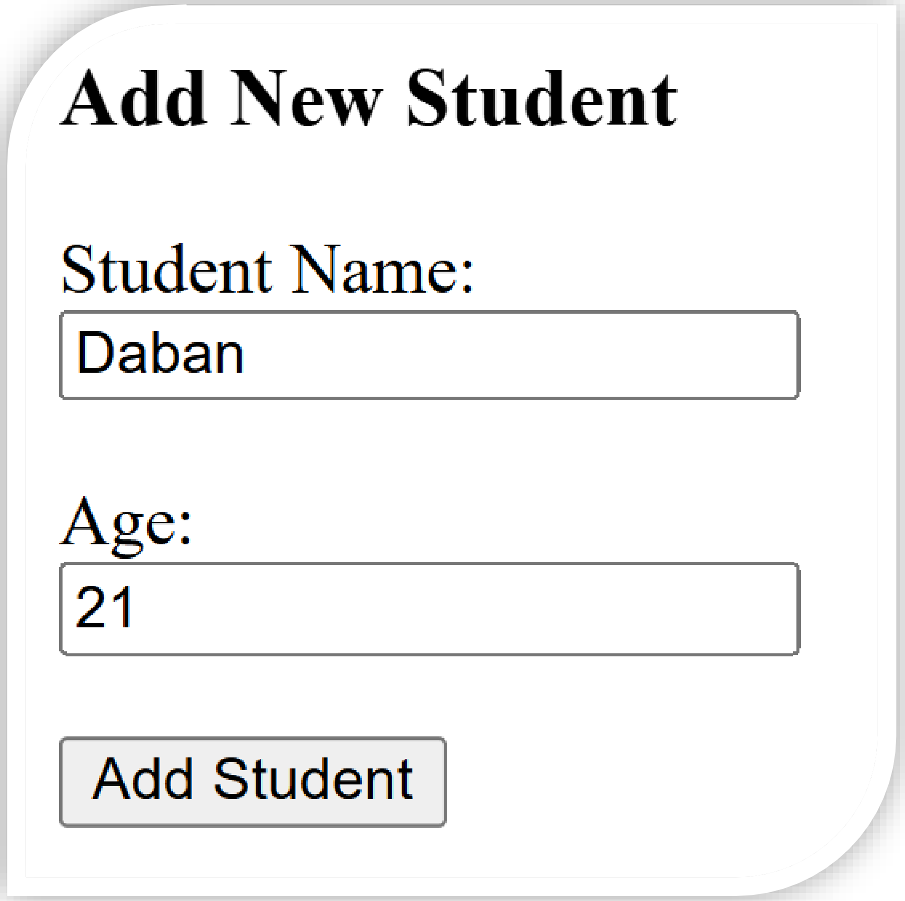
6. Execute the query

- Use mysqli_query() to send the query to the database:



```
$result = mysqli_query($dbc, $sql);

if ($result) {
    echo "Record inserted successfully";
} else {
    echo "Error: " . mysqli_error($dbc);
}
```

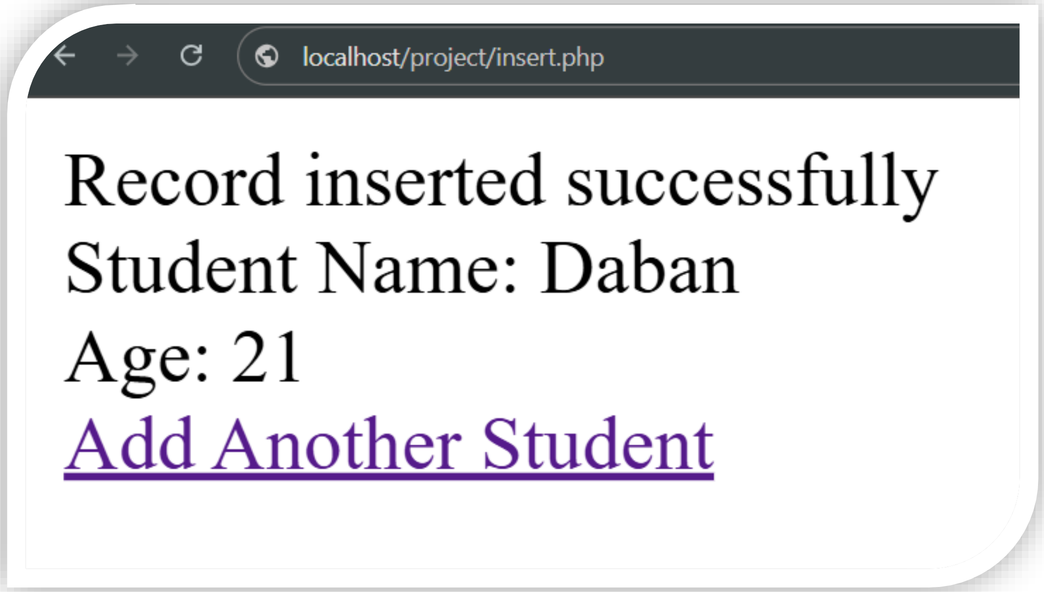
Inserting Form Data Into Database



Add New Student

Student Name: Daban

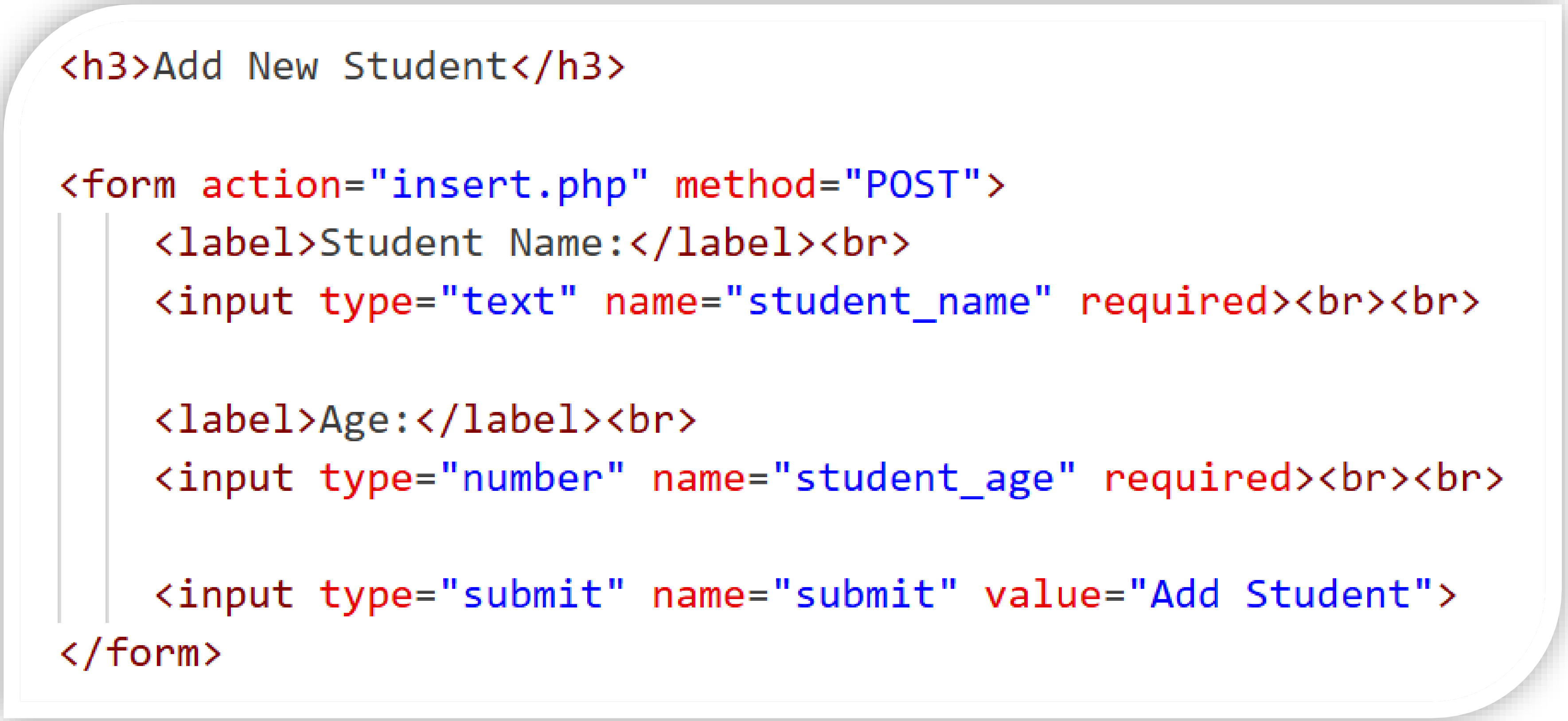
Age: 21



Record inserted successfully
Student Name: Daban
Age: 21
Add Another Student

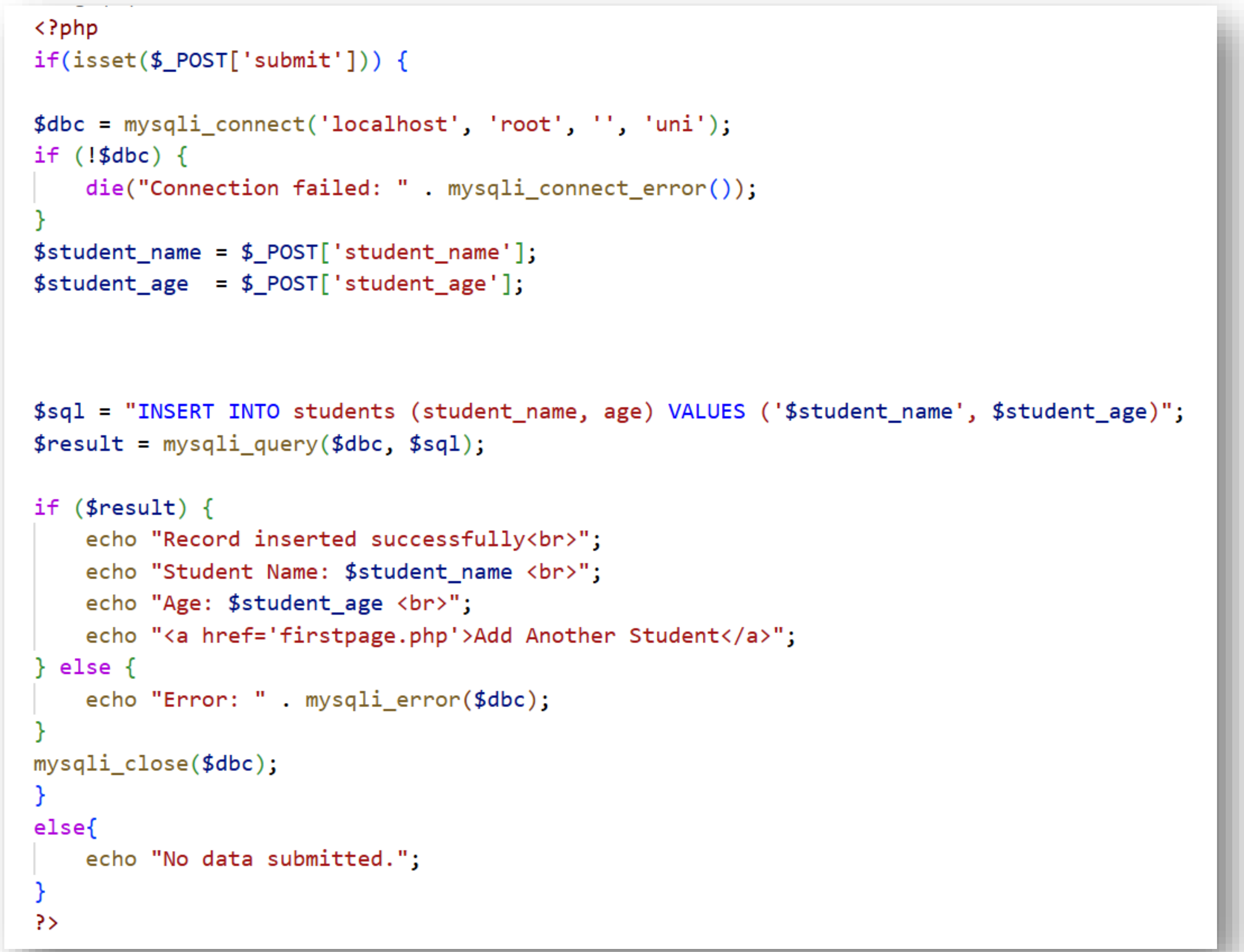
Inserting Form Data Into Database

- The Form



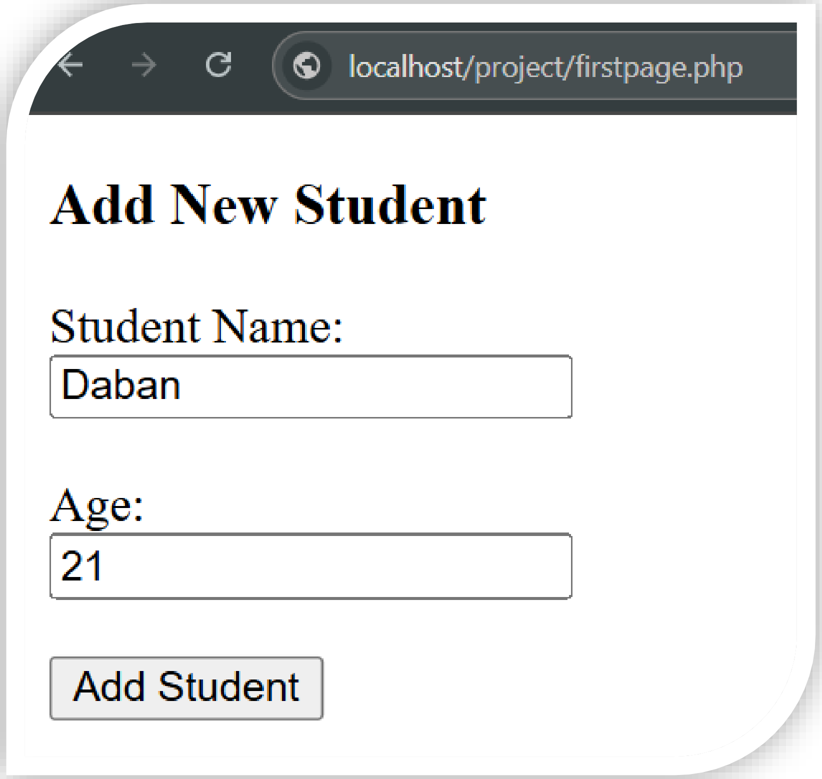
```
<h3>Add New Student</h3>

<form action="insert.php" method="POST">
    <label>Student Name:</label><br>
    <input type="text" name="student_name" required><br><br>

    <label>Age:</label><br>
    <input type="number" name="student_age" required><br><br>

    <input type="submit" name="submit" value="Add Student">
</form>
```

Inserting Form Data Into Database



```php
<?php
if(isset($_POST['submit'])) {

$dbc = mysqli_connect('localhost', 'root', '', 'uni');
if (!$dbc) {
    die("Connection failed: " . mysqli_connect_error());
}
$student_name = $_POST['student_name'];
$student_age  = $_POST['student_age'];



$sql = "INSERT INTO students (student_name, age) VALUES ('$student_name', $student_age)";
$result = mysqli_query($dbc, $sql);

if ($result) {
    echo "Record inserted successfully<br>";
    echo "Student Name: $student_name <br>";
    echo "Age: $student_age <br>";
    echo "<a href='firstpage.php'>Add Another Student</a>";
} else {
    echo "Error: " . mysqli_error($dbc);
}
mysqli_close($dbc);
}
else{
    echo "No data submitted.";
}
?>
```

Inserting Form Data Into Database



localhost/project/firstpage.php

Add New Student

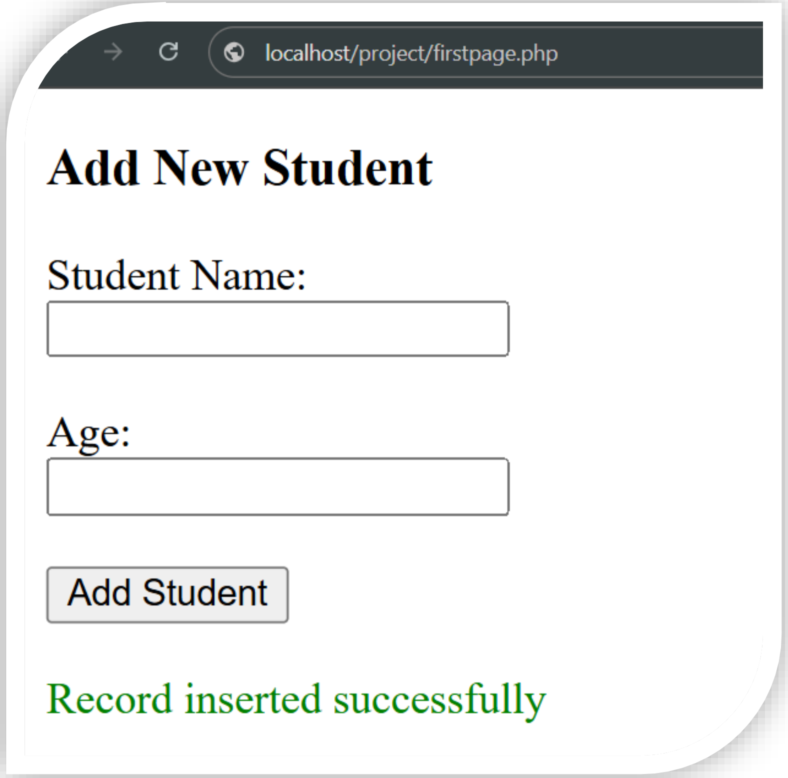
Student Name:

Daban

Age:

21

How?



localhost/project/firstpage.php

Add New Student

Student Name:

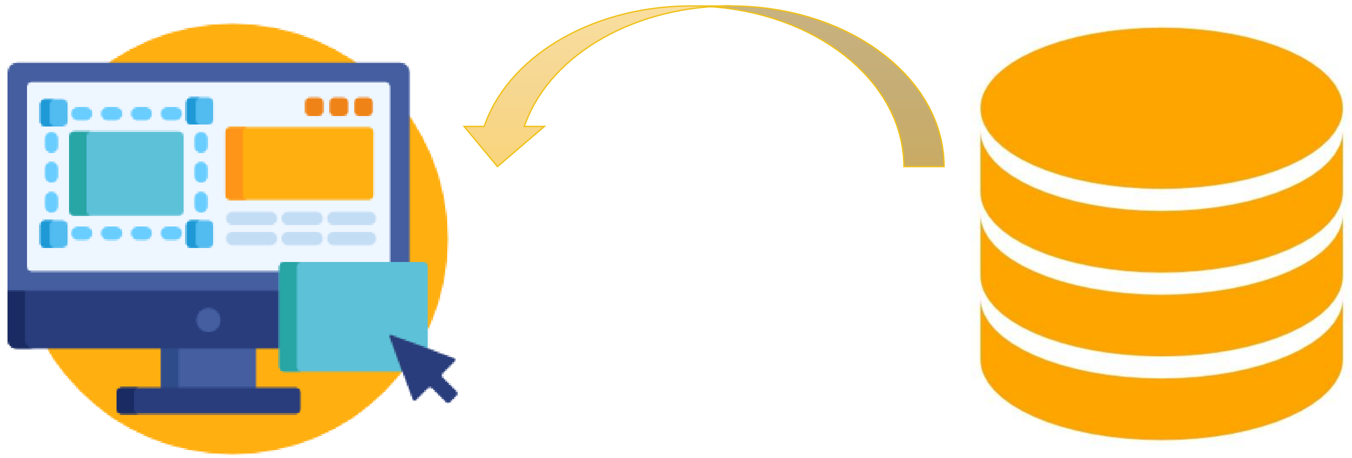
Age:

Record inserted successfully

HOMEWORK

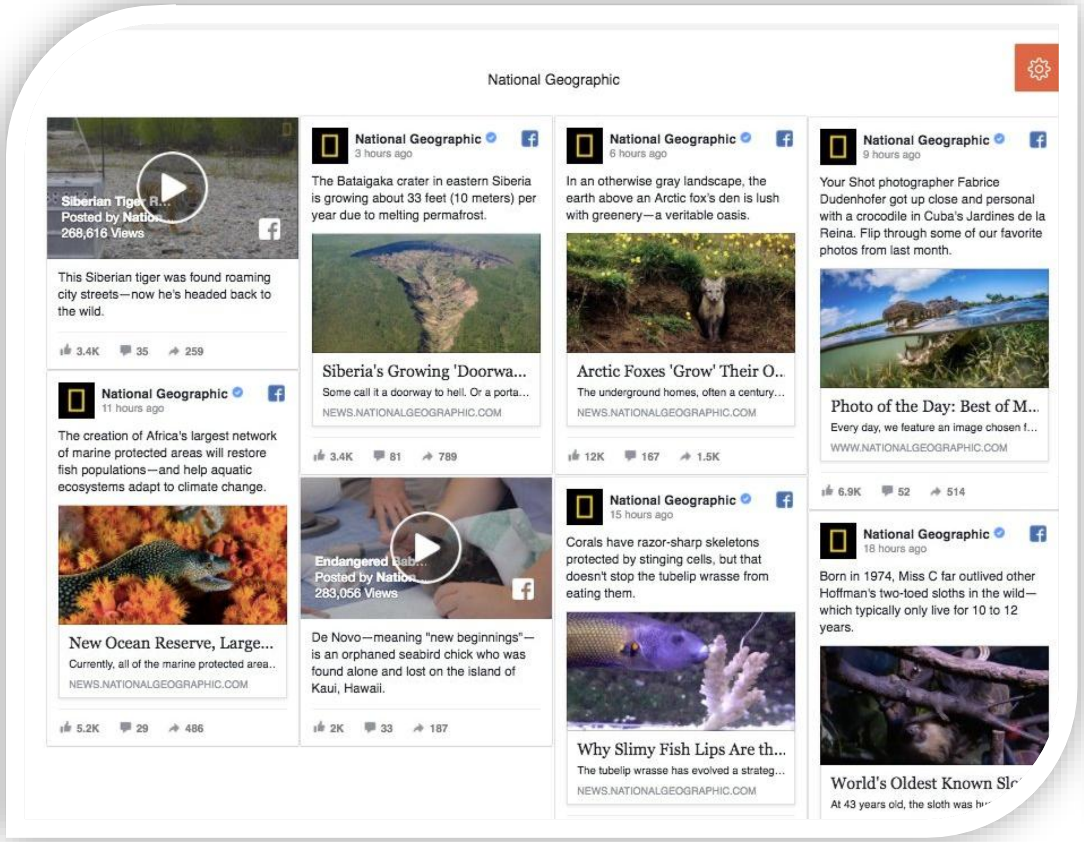
Retrieving Data from a Database

- Retrieving data from a database means accessing and displaying information that is already stored. In PHP, we connect to the database and use an SQL **SELECT** query to fetch records. Then we display the results on the webpage, such as in a table, so users can view the stored data.



Retrieving Data from a Database

- Examples



National Geographic

Siberian Tiger R...
Posted by Nation...
268,616 Views

This Siberian tiger was found roaming city streets—now he's headed back to the wild.

3.4K 35 259

National Geographic
3 hours ago

The Bataigaka crater in eastern Siberia is growing about 33 feet (10 meters) per year due to melting permafrost.

Siberia's Growing 'Doorwa...
Some call it a doorway to hell. Or a porta...
NEWS.NATIONALGEOGRAPHIC.COM

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National Geographic
6 hours ago

In an otherwise gray landscape, the earth above an Arctic fox's den is lush with greenery—a veritable oasis.

Arctic Foxes 'Grow' Their O...
The underground homes, often a century...
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National Geographic
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Your Shot photographer Fabrice Dudenhofer got up close and personal with a crocodile in Cuba's Jardines de la Reina. Flip through some of our favorite photos from last month.

Photo of the Day: Best of M...
Every day, we feature an image chosen f...
WWW.NATIONALGEOGRAPHIC.COM

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National Geographic
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The creation of Africa's largest network of marine protected areas will restore fish populations—and help aquatic ecosystems adapt to climate change.

New Ocean Reserve, Large...
Currently, all of the marine protected area..
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Endangered Bab...
Posted by Nation...
283,056 Views

De Novo—meaning "new beginnings"—is an orphaned seabird chick who was found alone and lost on the island of Kaui, Hawaii.

2K 33 187

National Geographic
15 hours ago

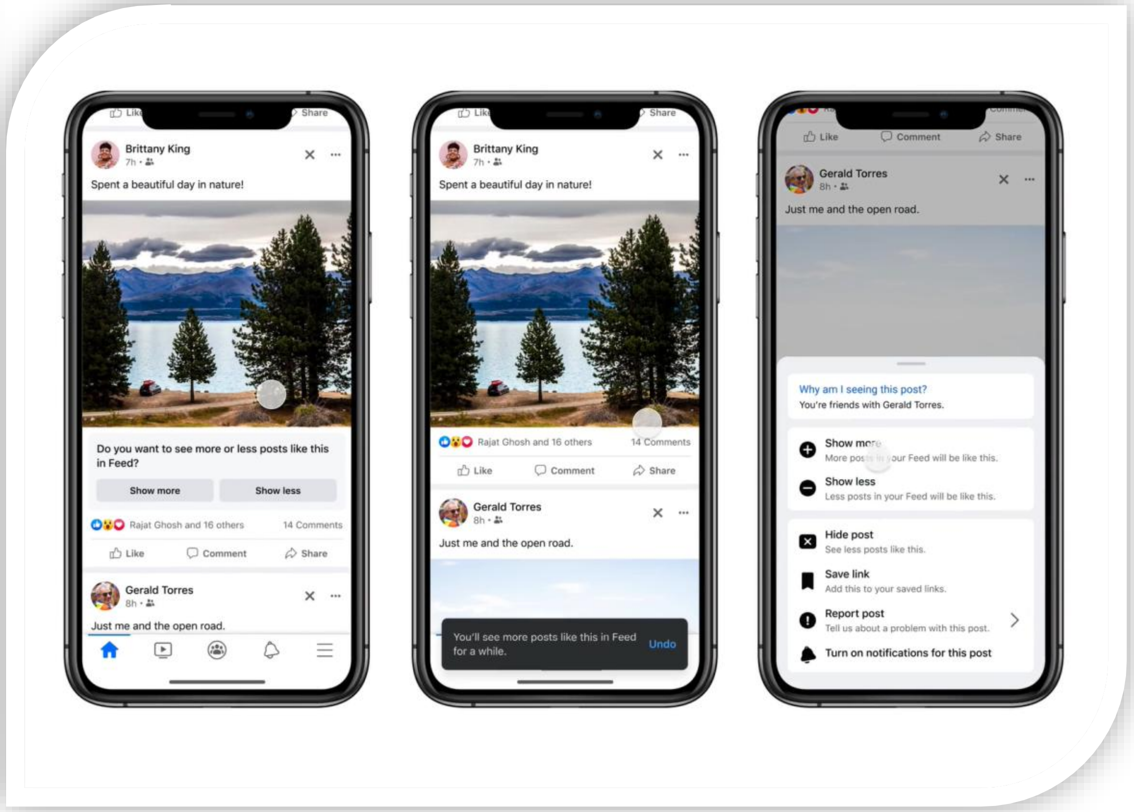
Corals have razor-sharp skeletons protected by stinging cells, but that doesn't stop the tubelip wrasse from eating them.

Why Slimy Fish Lips Are th...
The tubelip wrasse has evolved a strateg...
NEWS.NATIONALGEOGRAPHIC.COM

National Geographic
18 hours ago

Born in 1974, Miss C far outlived other Hoffman's two-toed sloths in the wild—which typically only live for 10 to 12 years.

World's Oldest Known Sl
At 43 years old, the sloth was h



Brittany King
7h

Spent a beautiful day in nature!

Do you want to see more or less posts like this in Feed?

Rajat Ghosh and 16 others 14 Comments

Gerald Torres
8h

Just me and the open road.

You'll see more posts like this in Feed for a while.

Why am I seeing this post?
You're friends with Gerald Torres.

Show more
More posts in your Feed will be like this.

Show less
Less posts in your Feed will be like this.

Hide post
See less posts like this.

Save link
Add this to your saved links.

Report post
Tell us about a problem with this post.

Turn on notifications for this post

Basic Concept

- Basic concept for the SELECT statement.

SELECT what columns **FROM** what **table**

- SELECT → choose what columns
- FROM → choose which table

SELECT Query

- The easiest query for reading data from a table is:

```
SELECT * FROM  tableName
```

- The asterisk is the equivalent of saying every column. If you require only certain columns to be returned, you can limit your query, like so:

```
SELECT name, email FROM users
```

SELECT Query

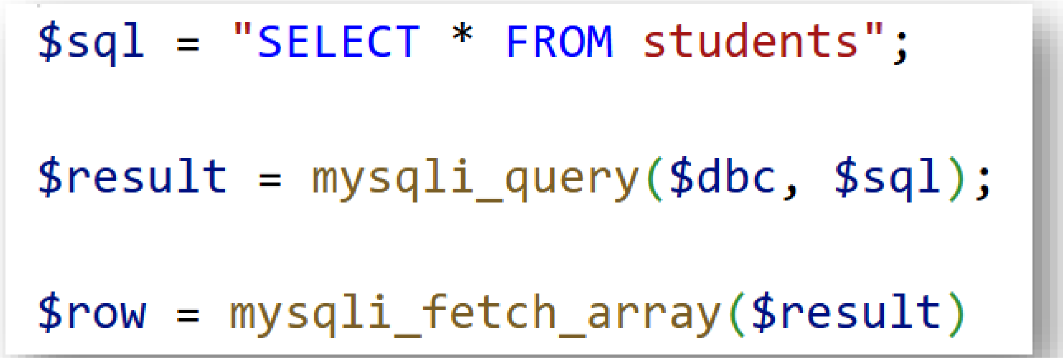
- Another way to alter your query is to add a conditional restricting which rows are returned, accomplished using a WHERE clause:

```
SELECT * FROM  user WHERE name = 'Rawa'
```

- Here you want the information from every column in the table, but only from the rows where the name column is equal to Rawa.

Retrieving Data from a Database

- mysqli_fetch_array(): Used to fetch **one row** of data from a result set returned by a MySQL query.

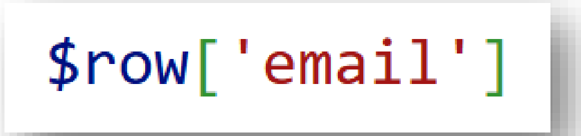


```
$sql = "SELECT * FROM students";

$result = mysqli_query($dbc, $sql);

$row = mysqli_fetch_array($result)
```

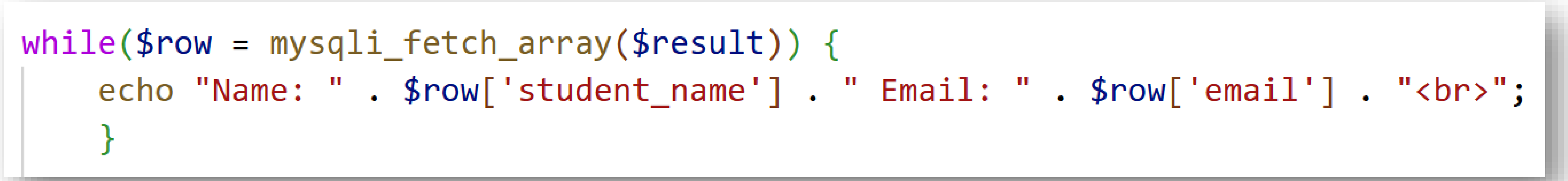
- The function retrieves one row from the result set at a time and stores it in an array. This array uses the column names as its indexes, allowing access to each value by its corresponding column name.



```
$row['email']
```

Retrieving Data from a Database

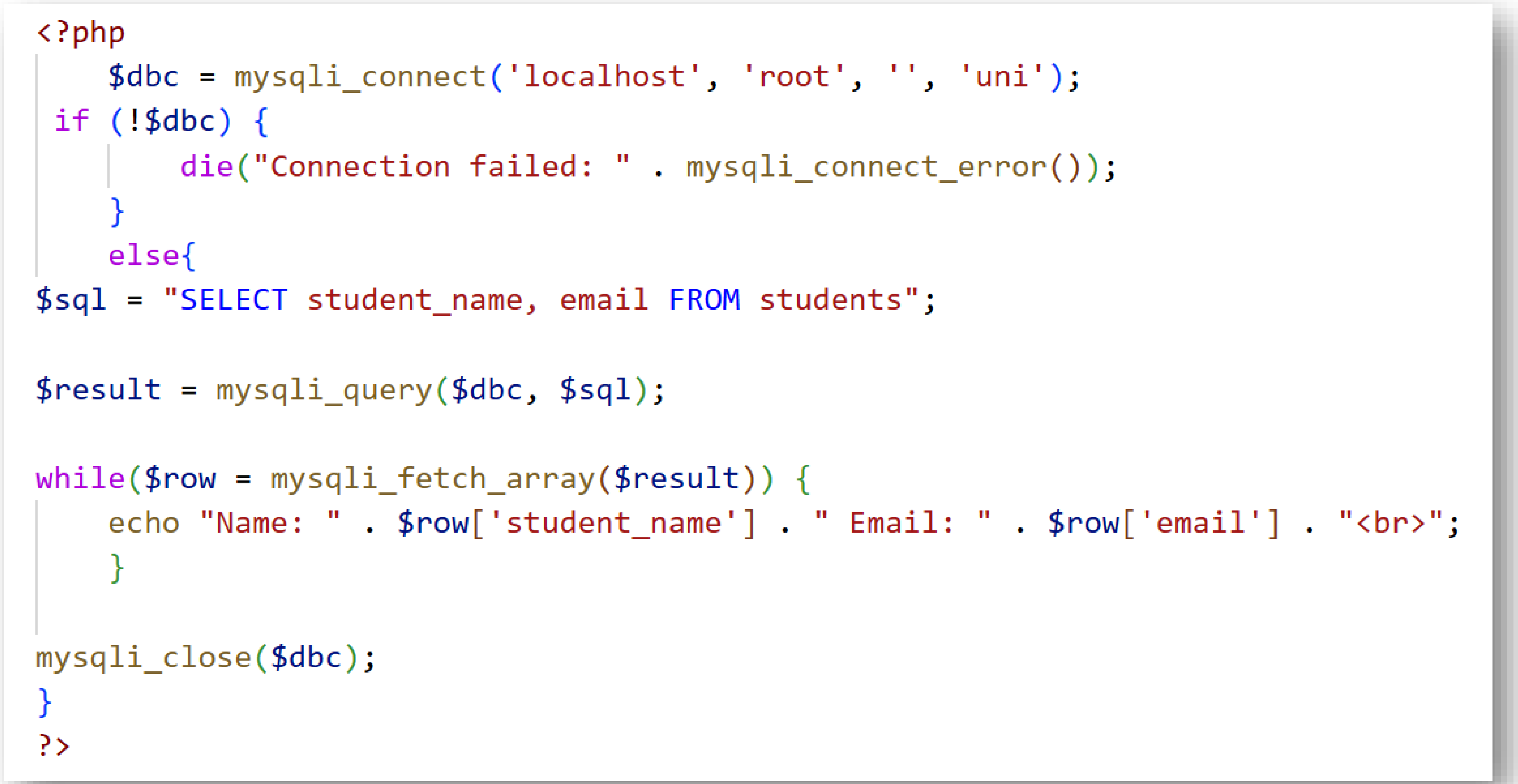
- As with any array, you must refer to the columns exactly as they're defined in the database (the keys are case-sensitive). So, in previous example, you must use $row['email'] instead of $row['Email'].
- If you want the query to return multiple rows, execute the **mysqli_fetch_array()** function inside a **loop** to retrieve them all.



```
while($row = mysqli_fetch_array($result)) {
    echo "Name: " . $row['student_name'] . " Email: " . $row['email'] . "<br>";
    }
```

Retrieving Data from a Database

- Full Code ✓



```php
<?php
    $dbc = mysqli_connect('localhost', 'root', '', 'uni');
 if (!$dbc) {
        die("Connection failed: " . mysqli_connect_error());
    }
    else{
$sql = "SELECT student_name, email FROM students";

$result = mysqli_query($dbc, $sql);

while($row = mysqli_fetch_array($result)) {
    echo "Name: " . $row['student_name'] . " Email: " . $row['email'] . "<br>";
    }

mysqli_close($dbc);
}
?>
```

Retrieving Data from a Database

- The mysqli_fetch_array() function accepts an **optional argument** that specifies the type of array to be returned. Using the constant MYSQLI_ASSOC returns an associative array with column names as keys, while MYSQLI_NUM returns a numerically indexed array.
- The mysqli_fetch_assoc() function retrieves a result row as an associative array, where the field names are case-sensitive.

Retrieving Data from a Database

- MYSQLI_ASSOC -> This gives you an associative array (keys = column names):

```
$row = mysqli_fetch_array($result, MYSQLI_ASSOC);
echo $row['student_name'];
```

- MYSQLI_NUM() -> This gives you a numeric array (keys = 0, 1, 2 ...):

```
$row = mysqli_fetch_array($result, MYSQLI_NUM);
echo $row[0];
```

- mysqli_fetch_assoc(): This function always returns associative array only:

```
$row = mysqli_fetch_assoc($result);
echo $row['student_name'];
```

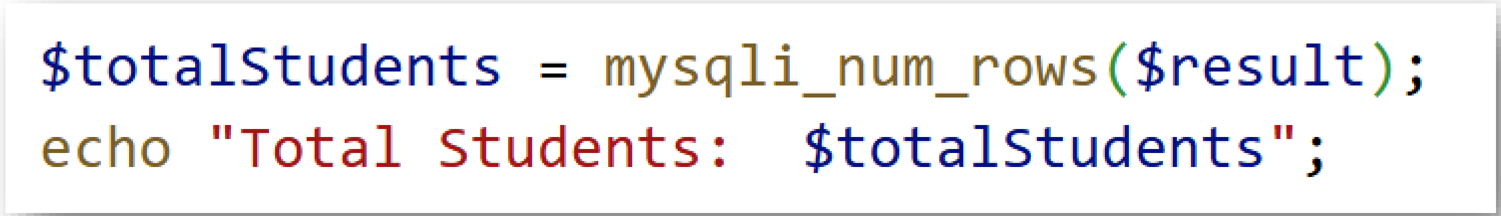
Retrieving Data from a Database

- **mysqli_fetch_array()** is the most flexible because it can return rows in three ways:

  1. Associative array (column names as keys) → **MYSQLI_ASSOC**
  2. Numeric array (numbers as keys) → **MYSQLI_NUM**
  3. Both → **MYSQLI_BOTH** (default)

Retrieving Data from a Database

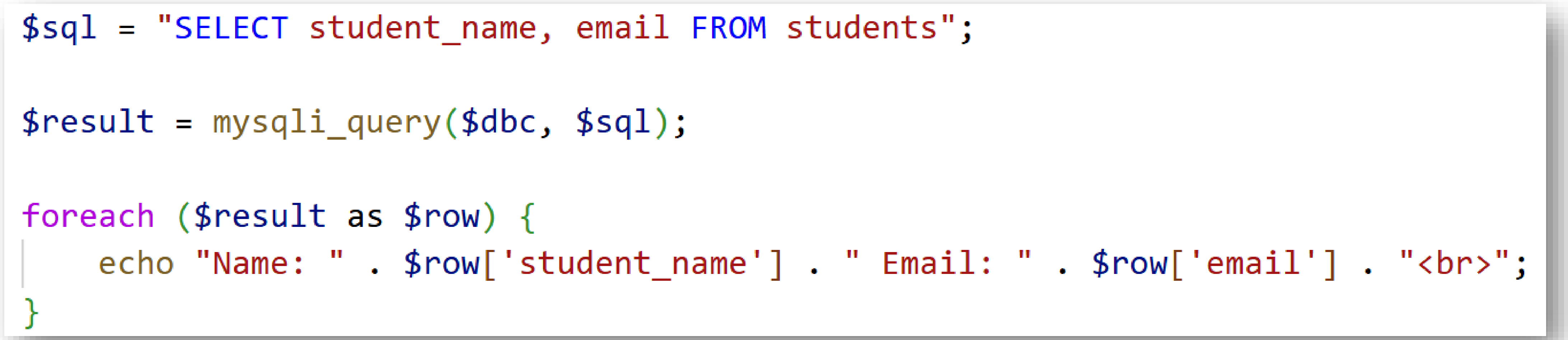
- **mysqli_num_rows()** is a function that tells you how many rows a SELECT query returned.
  - For example, if your query returns 5 students, mysqli_num_rows($result) will return 5



```php
$totalStudents = mysqli_num_rows($result);
echo "Total Students:  $totalStudents";
```

Retrieving Data from a Database

- Using foreach directly on the result:



```
$sql = "SELECT student_name, email FROM students";

$result = mysqli_query($dbc, $sql);

foreach ($result as $row) {
    echo "Name: " . $row['student_name'] . " Email: " . $row['email'] . "<br>";
}
```

Retrieving Data from a Database

- Key Differences

Feature	foreach ($result as $value)	while(mysqli_fetch_array())
PHP version compatibility	PHP 7+	All versions
Memory usage	Loads all rows for iteration	Fetches one row at a time
Readability	Simple and concise	Slightly longer, more traditional
Control	Less control per iteration	Can customize each fetch, e.g., type of array

Lab Assessments and Next Session's Topic

Lab Assessments

- Quiz 4 (Practical) from Lecture Notes 6 and 7.
- Lab Exercises.

Next Session's Topic

- Update and Delete in PHP

References

- Tatroe, K., & MacIntyre, P. (2020). Programming PHP: Creating dynamic web pages (4th ed.). O’Reilly Media.
- Ullman, L. (2016). PHP for the web: Visual QuickStart guide (5th ed.). Peachpit Press.
- PHP Documentation. (n.d.). PHP.net. Retrieved November 8, 2025, from https://www.php.net/docs.php

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Thank You!